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ABSTRACT

For farmers with high debt/asset ratios, leasing is an attractive option for securing the use of farm machinery. Under the current tax laws, financial leasing carries lower after-tax costs than loan purchasing. By size, farms with more than $500,000 in sales had the highest proportion of U.S. expenditures for farm equipment leasing. By region, the Pacific States, Corn Belt, Delta-Southern Plains, and Northern Plains regions accounted for the largest proportion of expenditures. By farm type, cash grain, dairy, general livestock, and field-general crop farms recorded the largest proportion of leases. Because many are large farms, they require the use of large equipment whose resale caters to a very limited segment of the farm sector. Without an obligation to purchase, these farms are protected by leasing from the decline in the equipment's market value. (Author/KC)

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Farm Equipment Leasing

A New Financial Strategy

William S. Serletis

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FARM EQUIPMENT LEASING: A NEW FINANCIAL STRATEGY. William S. Serletis. National Economics Division, Economic Research Service, U.S. Department of Agriculture. Staff Report No. AGES870302.

ABSTRACT

For farmers with high debt/asset ratios, leasing is an attractive option for securing the use of farm machinery. Under the current tax laws, financial leasing carries lower after-tax costs than loan-purchasing. By size, farms with over $500,000 in sales had the highest proportion of U.S. expenditures for farm equipment leasing. By region, the Pacific States, Corn Belt, Delta-Southern Plains, and Northern Plains regions accounted for the largest proportion of expenditures. By farm type, cash grain, dairy, general livestock, and field-general crop farms recorded the largest proportion.

Keywords: Lessee, lessor, debt, assets, return, taxes, net present value.

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HIGHLIGHTS

For farmers with high debt/asset ratios, leasing may provide a feasible alternative to acquire use of machinery or other farm assets. Many farmers with high debt leverage lack sufficient credit for further loans. Even if credit is available, additional loan obligations on fixed capital such as farm machinery can reduce farmers' ability to finance operating inputs such as pesticides and fertilizers. Liens on farm property incurred by past loans decrease the collateral which the farm can use for operating loans which finance the purchase of the above farm inputs. Furthermore, farmers facing declining land values may better qualify for a lease because collateral requirements are less rigid than on an equivalent loan-purchase.

Past tax laws have made a lease less costly than a comparable loan-purchase for farmers in both low and high tax brackets. The new laws passed under the Tax Reform Act of 1986 increase the relative cost advantage of leasing for high-income farmers, yet decrease it for low-income farmers.

Lessors have been willing to commit capital to leasing transactions for economic incentives apart from tax incentives of the investment tax credit and accelerated depreciation. Farm equipment dealers can use leasing to reduce excess inventories of machinery. Commercial banks often have leasing subsid- iaries which use the bank's excess funds to earn a competitive rate of return on leases. Farm cooperatives and Production Credit Associations have begun to open leasing departments in order to better serve members' equipment needs.

Farms with annual sales exceeding $500,000 accounted for the largest proportion of leasing expenditures in 1985. These farms had the highest average return on assets which increases the after tax cost of the lease relative to a loan-purchase under the tax laws existing in 1985. But, it appears that these farmers' high debt leverage (highest among sales classes) stimulated their leasing expenditures. Leasing expenditures made by farms with under $40,000 in annual sales represent a very small proportion of the total U.S. leasing expenditures. Low debt/asset ratios could increase their eligibility for a loan-purchase and prevent any additional debt obligations from severely straining their credit reserves. Furthermore, relatively higher off-farm income enabled many smaller farms to profit from the investment tax credit and accelerated depreciation which existed in 1985 on a loan-purchase. The new tax laws which eliminate the investment tax credit might encourage some of these farms to lease.

By region, the Pacific States, Corn Belt, Delta-Southern Plains, and Northern Plains regions accounted for the largest proportion of farm equipment leasing in 1985. Significant factors could be the need for expensive planting and harvesting equipment for specialized enterprises, high debt/asset ratios, and declining land values. Although not experiencing as significant a decline in land values, farms in the Pacific States accounted for the highest proportion of U.S. leasing expenditures.

By farm type, cash grain, dairy, general livestock, and field-general crop farms accounted for the largest proportions of U.S. leasing expenditures. These farms do not necessarily have the highest debt/asset ratios or lowest return on assets where leasing is more attractive. They do, however, represent approximately 70 percent of the total number of farms in the United States. Because many are large farms, they require the use of large equipment whose resale caters to a very limited segment of the farm sector. Without an obligation to purchase, these farms are protected by leasing from the decline in the equipment's market value.

Farm Equipment Leasing

A New Financial Strategy

William S. Serletis

INTRODUCTION

The prospect of large export markets for American agricultural products during the 1970's induced many farm operators to consolidate operations in an attempt to achieve economies of scale and lower production costs. Capital expenditures for tractors and other farm machinery consequently increased from $4.0 billion in 1970 to $10.2 billion in 1981 (10).1/ Between 1981 and 1985, a sharp drop in real farm income, a rise in real interest rates, and declining farmland values caused a 42.2-percent reduction in capital expenditures to only $5.9 billion. This sharp reduction in expenditures for new and used machinery is beginning to show up as a net disinvestment in the stock of farm machinery owned on farms. Between 1981 and 1985, the value in stock declined from $8.8 to only $6.8 billion, a 22.7-percent decrease (10).

Such net disinvestment signifies a decision by farmers to reduce purchases of new farm equipment. In order to do so, they retain aging equipment for longer periods and allocate a larger proportion of their budget toward repair and maintenance. The farmers' increasing tendency to delay farm equipment purchases due to the financial stress period of the early 1980's has increased the aggregate ratio of repair and maintenance expenditures for tractors and other machinery to farm capital expenditures from 0.32 in 1979 to 0.68 in 1985 (10).

A lower investment rate, where the farmer's value of assets tied to machinery is kept to a minimum, complies well with the farm sector's current incentives to reduce debt loads. Between 1970 and 1985, the farm sector's debt/asset ratio increased from 16.7 percent to 23.6 percent (10). High interest obligations corresponding to heavy debt loads limit a farm's ability to scale down expenditure levels should low commodity prices reduce its earnings. On the other hand, the farm can more easily decrease its outlay for repair and maintenance by using less equipment or the same equipment for shorter periods.

Aside from increasing repair and maintenance expenditures, a farm can also use leasing to reduce investment in farm machinery. Leasing expenditures for farm machinery increased from $297 million in 1979 (13) to $450 million in 1985 (12). These volumes reflect both operating and financial leases. Operating leases are short term, usually less than a year. Their rental rates are paid on an hourly, daily, or weekly basis. Operating leases are useful for linking equipment expenditures directly to equipment use. By doing so, they eliminate the accumulation of excess overhead which obligates these farms to produce at a high level of production without regard to demand for their output.

1/ Underscored numerals in parentheses refer to items in the References section.

Unlike operating leases, financial leases are longer term and do commit the farmer to a long-term commitment similar to a loan-purchase. In case of default on payments, the farmer does not, however, bear the risk of foreclosure on personal assets not part of the lease transaction. Financial leases can also provide significant tax deductions.

The following discussion outlines why farmers are increasing leasing expenditures in the face of a general drop in production expenditures as well as capital expenditures. The capital structure (debt/asset ratio, land values) of farmers together with favorable tax treatment have stimulated their increasing participation in leasing transactions. Results from USDA's 1985 Farm Costs and Returns Survey (FCRS) indicate how the above factors influence the distribution of leasing expenditures across size, regional, and type classifications of farms (12).2/ The analysis will pay particular attention to whether higher debt/asset ratios and low returns on assets are more characteristic of leasing farmers or those engaging in a loan-purchase.

Appendix I of the report presents the evolution of tax laws affecting the standards by which transactions on agricultural property are classified as leases where both equipment owners and farmers receive favorable tax treatment. The discussion focuses on "finance" leases authorized by the Tax Equity and Fiscal Responsibility Act of 1982.

By affecting a lease's relative cost to a loan-purchase, tax laws can heavily influence a farmer's incentive to use leasing for securing use of farm equipment. Using budget examples, Appendix II examines the strength of the effect of past tax laws on a comparison of cash flow and present value cost between the two financing options. It then examines whether the new tax laws under the Tax Reform Act of 1986 are targeting the economic incentives of leasing to the same groups of farmers.

ADVANTAGES OF FINANCIAL LEASING

Leasing has attracted lessors and lessees with specific financial needs and objectives. While the lessor can earn a competitive rate of return on the property while not operating it, the lessee can secure the use of the equipment without bearing the burdens of ownership such as an equipment breakdown or obsolescence.

Because the tax laws are favorable to lessees and lessors, lawmakers have been careful to distinguish a true lease from a loan-purchase disguised as a lease. Table 1 indicates the evolution of laws setting the criteria for a true lease. Appendix I provides a more indepth explanation of these laws.

Lessor's Economic Benefits

The four major types of lessors in the agricultural sector include farm equipment dealers and manufacturers, independent lessors which often broker funds between commercial banks and lessees, bank-affiliated lessors, and cooperatives. As property owners, all these types of lessors have been able to use the 10-percent investment tax credit and the accelerated schedule of depreciation to reduce income taxes. The Tax Reform Act of 1986 eliminated

2/ The FCRS is an operator survey that represents 1.5 of 2.2 million farm operators.

Table 1--Provisions of tax laws pertaining to the leasing of agricultural equipment

Guideline Rules Pre - 1981	Economic Recovery Tax Act of 1981 (ERTA)	Tax Equity and Fiscal Responsibility Act of 1982(TEFRA)	Tax Reform Act of 1986
Lessor holding 20 percent of risk in leased property's value	Lessor holding 10 percent of risk in leased property's value	(same as guideline rules)	(same as guideline rules)
Lessor's profit incentive in lease transaction required	Lessor's profit incentive in lease transaction not required	(same as guideline rules)	(same as guideline rules)
Purchase contract between lessor and lessee and lease disallowed	Purchase contract transferring from lessor to lessee complete risk of property's residual value allowed	Allowance of purchase contract where lessor holds full risk in leased property's residual value	(same as TEFRA)
Up to 80 percent of property value amortized during the lease term	Up to 90 percent of leased property's value amortized during the lease term	(same as ERTA)	(same as (ERTA)
No safe harbor provision	Safe harbor leasing allowing transfer of tax benefits from lessor to lessee	(same as guideline rules)	(same as ERTA)
10-percent investment tax credit	10-percent investment tax credit for those using accelerated cost recovery schedule	8-percent investment tax credit for those using accelerated cost recovery schedule	Elimination of investment tax credit
Straight line, double declining balance, or sum of digits depreciation	5-year accelerated cost recovery schedule	(same as ERTA)	Straight line depreciation in first year followed by double declining balance depreciation in each of the remaining years

the investment tax credit but allowed a double declining balance depreciation over a 7-year period.3/ This schedule generally provides for a faster initial writeoff than the current 5-year accelerated cost recovery schedule.

For leased agricultural property valued below $150,000, lessors can still use the investment tax credit and accelerated schedule of depreciation until the end of 1987. After this provisional period, the elimination of these tax deductions required by the 1986 Act will fully take effect.

Each type of lessor also has a separate nontax motive for engaging in a lease transaction. Farm equipment manufacturers and dealers often have strong incentives to promote sales. During periods of sagging farm equipment demand, a reduction in inventories with high carrying costs can offset a lower rate of return earned on leases. Lessors, which are either farm equipment manufacturers or dealers, often substitute a low lease rate for a flat discount on the equipment's purchase price. This lower rate often attracts farmers whose tight budget would otherwise discourage their use of additional or newer equipment.

The farm sector currently has access to loans with lower rates than in the early 1980's, but it may be that fewer farms qualify for these loans. Commercial banks with an excess supply of low-cost funds often channel them to leasing affiliates. These affiliates deal with farmers whose high debt/asset ratios prevent them from qualifying for a bank loan. The size of their transactions also can exceed the size limits on the bank's loans. Through their leasing subsidiaries, some commercial banks may have begun to lease back foreclosed property to farmers.

Farm cooperatives and several Production Credit Associations (part of the Farm Credit System) purchase and lease farm equipment to serve their members who own capital stock in these organizations. If their profit motive is not as strong as privately incorporated lessors, they may charge a lower lease rate.

Independent lessors would have the least incentive to transfer the value of tax benefits to the lessee. Their possible higher fixed overhead costs per transaction and likely higher cost of funds may reduce their ability to accept a lower implicit rate of return on leases.

Lessee's Economic Benefits

Lessee farmers can reduce taxable income by including the full financial lease payment as a business expense. The farmer with a negligible tax liability due to low income can possibly receive a pass-through in the value of the tax benefits from a lessor in the form of a cash payment or lower lease payments.

This pass-through enables a lessor with high tax liability to share his tax benefits with both farmers with high and low tax liabilities. The safe harbor rules attached to the Economic Recovery Tax Act of 1981 (ERTA) allowed the above transfer. Under recently passed tax laws, the safe harbor rules remain intact for agricultural property with a value not exceeding $150,000. After the provisional period, the elimination of the investment tax credit for the lessor as well as his lower marginal tax rate will, however, decrease the value of tax benefits transferred.

3/ For tax purposes, the lessor can deduct only half of the first year's depreciation.

Results from illustrative examples in Appendix II indicate that, for both farmers in high and low tax brackets, a lease carries a lower cash outflow and present value cost than a comparable loan-purchase. Under the old tax laws, the transfer of tax benefits from the lessor receiving the investment tax credit enabled leases to have a much higher cash flow and present value cost advantage over loan-purchases than under the current tax laws.

While the cost advantage of leasing has decreased for low-income farmers under the Tax Reform Act of 1986, the cost advantage for high-income farmers has definitely increased. While lease payments continue to be tax deductible, a high-income farmer can no longer use the investment tax credit on a loan-purchase.

Unlike operating leases, financial leases obligate the lessee to make payments during the entire lease term just as with loan-purchase agreements. However, the outstanding balance on a financial lease does not appear on a farmer's balance sheet as a liability which is covered by a lien on a farmer's assets. This feature prevents a lease from severely limiting an already highly leveraged farmer's borrowing capacity for future credit. It is true that payments on a current lease can affect the farmer's ability to service a future loan. Lessors do not, however, lay claim to a farmer's personal assets in case of default. They instead recover the leased property. For this reason, prospective lenders are usually less concerned with the farmer's outstanding balance on leases than loans.

Because of his easier recovery of property, a lessor usually requires lower collateral values on a financial lease than a lender on a loan-purchase. The farm sector's declining land values as well as high debt levels have, therefore, made leasing an attractive option to consider.

The financial lease has other important advantages. The lease payment paid in advance is generally lower than a downpayment on an equivalent loan. The lease, thus, frees working capital, which many farmers short of cash need to operate their farms.

PROPORTIONAL BREAKDOWN OF LEASING EXPENDITURES

The following discussion presents estimates made from the FCRS on leasing expenditures by sales class, region, and farm type. The prevalence of leasing in each farm classification is associated with its farmers' net return from operations and capital structure, measured by debt/asset ratios and the value of assets, including land.

The following analysis focuses on whether debt/asset ratios and the net return on assets differ significantly between farmers purchasing farm equipment and those leasing it. The analysis uses results from the 1984 and 1985 FCRS to determine whether relationships between those financial characteristics and the decision to lease changed significantly between these 2 years. To make mutually exclusive groups, the analysis examines separate categories of farmers who only leased and those who only purchased.

Based on laws existing in 1985, leasing should appeal more to farmers with higher debt/asset ratios and lower incomes where the cost difference between

the lease and loan-purchase is greatest.4/ The 1984 FCRS indicated that farms which leased during 1984 were on average more highly leveraged than nonleasing farms (debt/asset ratio of 41 percent versus 29 percent). During the same year, leasing farmers recorded a zero return on assets compared with 2.2 percent for nonleasing farms. In 1985, leasing farmers recorded a debt/asset ratio at 43.8 percent, compared with 30.5 percent for nonleasing farmers. The leasing farmer furthermore earned a before-tax return on assets of 4.3 percent, compared with 6.0 percent for nonleasing farms.

The FCRS questions on leasing do not distinguish between expenditures on operating and financial leases. Operating leases, which entail much less of a financial commitment than a loan-purchase, should attract farmers for many of the same reasons as financial leases.

Farms with no debt liability were excluded from the sample upon which estimates of debt/asset ratios and return on assets were based. The average debt/asset ratios and return on assets, recorded by farms which had positive levels of debt and which remained in the sample, were consequently higher than those statistics recorded for the general farm population.

While leasing expenditures reported by the 1985 FCRS were based on decisions made throughout the year and recent previous years, debt/asset ratios listed in the FCRS were recorded at the end of the year. Debt/asset ratios recorded by individual farms represent the long-term financial position of the farm and would be influenced by decisions and conditions which occurred prior to 1985.

Breakdown by Sales Class

Although farms with over $100,000 in sales accounted for only 63 percent of the farm population's production expenditures in 1985 (10), they generated 83 percent of its total leasing expenditures (fig. 1). Leasing expenditures then were most prevalent for farms with over $500,000 in annual sales. Although accounting for only 1.7 percent of the number of farms (10), they generated 43 percent of the farm sector's leasing expenditures. They averaged $23,238 in annual leasing expenditures per leasing farm, compared with only a $6,803 average lease expense in the next highest sales class (12). Some farms in the over $500,000 sales class have leasing expenditures well above the average.

In 1984 and 1985, the largest farms displayed among the highest debt/asset ratios (fig. 2). High debt/asset ratios resulted from asset acquisitions financed by debt and declining land values. Leasing prevents these farms from increasing their debt to asset levels any further. Leasing also enables them to maintain credit reserves necessary for financing operating inputs such as pesticides and fertilizers. Ready access to these inputs is critical to the timeliness of these large farms' operations.

The cost advantage of leasing over a loan-purchase is more significant for low-income farmers. It is therefore surprising that the highest sales classes which had the highest incomes (fig. 3) accounted for a very high proportion of the FCRS sample's leasing expenditures. It is also surprising that, in 1985, leasing farms in the second and third highest sales classes earned a slightly higher return on assets than nonleasing farms. Accumulating high debt

4/ Net return from operations includes operating margin plus net value of commodity credit loan benefits received plus value of onfarm production used for home consumption minus imputed depreciation.

leverage could be one explanation for these occurrences. In this case, a high debt leverage superceded a high return on assets in inducing large farms to lease. Another explanation relates to the sample which excludes farms with no debt liability. It appears that the remaining large farms with positive debt leverage had higher returns on assets than large farms in the more general sample which included farms with no debt leverage.

Between 1984 and 1985, the higher return on assets shifted from nonleasing to leasing farmers. The difference in debt/asset ratios between the two farmer categories, however, continued to be sharp. It is possible that high debt/asset ratios played a more permanent role in influencing a farmer's decision to lease. For example, a large farm's current high return on assets could make a loan-purchase more financially attractive in the short run. However, the uncertainty of future income for a highly leveraged farm could render a lease less risky and therefore more beneficial in the long run.

Aside from their capital structure, the size of the farm machinery they use likely attracted the larger farms to leasing. Figure 4, displaying average leasing expenditures for equipment, indicates the size of the equipment used by larger farms. The optional purchase protects these farms from the risk that the market value of this specialized equipment falls below its book value.

Although they accounted for 37 percent of the farm sector's production expenditures, farms with less than $100,000 in sales generated only 17 percent of the total leasing expenditures in 1985. Among these farms, expenditures by farms with between $40,000 and $100,000 in sales represent the largest share of the U.S. total (15 percent). This group averaged a low return on assets and a relatively high debt/asset ratio (figs. 2 and 3). Within this size class, farms that leased had a much higher average debt/asset ratio.

Farms with less than $40,000 in annual sales generated a very small proportion of total U.S. leasing expenditures. Despite negative incomes from farm operations recorded during 1985, off-farm income may increase the taxable income of many small farmers by enough to prevent a lease from being significantly more financially attractive than a loan-purchase. Also, because of their lower capitalization, smaller farms had lower average debt/asset ratios and were more likely to be eligible for debt financing.

Breakdown Across Regions

For 1985, the following regions represented the greatest proportions of leasing expenditures: Pacific States, Corn Belt, Delta-Southern Plains, and the Northern Plains (fig. 5). Farms in these regions averaged among the highest returns on assets (fig. 6). Relatively high debt/asset ratios (fig. 7), however, encouraged many of these farms to lease instead of engage in a loan-purchase. Although in 1985 leasing farms in many of these regions recorded higher returns on assets than farms engaging in loan-purchases, leasing farms for all regions recorded higher debt/asset ratios.

Aside from high debt/asset ratios, the deterioration in credit availability caused by declining land values may have induced many farms in the above regions to lease. Between January 1, 1984, and January 1, 1985, farmland values among the FCRS-sampled farms decreased by 25 percent in the Corn Belt, 21 percent in the Lake States, and 23 percent in the Northern Plains (11). These decreases far exceeded land value declines in other farm regions.

The Northeast, Appalachian, and Southeast regions had very small shares of total U.S. leasing expenditures. Within each of these three regions, farmers whose average debt/asset ratio exceeded 40 percent represented less than 15 percent of their total farmers, compared with 25-30 percent for farms in the Corn Belt, Northern Plains, and Lake States (11).

The 1985 FCRS subdivided leased property into trucks, tractors, irrigation equipment, and other farm equipment. The FCRS sample used to calculate total leasing expenditures differs from the FCRS sample used to disaggregate these expenditures by equipment type. The following discussion will, nevertheless, assume that the proportion of equipment leased by farm categories remains the same between both samples.

Tractor leasing represented the greatest proportion of the region's total leasing expenditures in the Pacific States, Delta-Southern Plains, and Northern Plains (fig. 8). The leasing of farm equipment other than tractors such as harvesting and cultivating machinery, meanwhile, represented high proportions in the Corn Belt where large farms need seasonal equipment, and in the Lake States where dairy farms need haying and dairy equipment. Expenditures for the leasing of trucks and autos were most dominant proportionately in the Pacific States where fruit and vegetable farms need trucks for transporting produce to market, and the Mountain States where cow-calf and beef feeding operations use trucks for hauling hay. The Mountain States which include Arizona, New Mexico, and Nevada where much irrigation takes place spent a large proportion of leasing expenditures on irrigation equipment, as did the Northern Plains and the Delta-Southern Plains regions.

Pacific States and Delta-Southern Plains farms recorded the highest average leasing expenditures (fig. 9). For example, they made an average expenditure on tractors amounting to $3,782 and $3,082, respectively, compared with only $1,300 for Northern Plains farms and $812 for Corn Belt farms (fig. 9).

Breakdown by Type of Farm

Cash grain farms accounted for the largest share of U.S. total leasing expenditures, followed by field-general crop farms, dairy, and general livestock farms (fig. 10). Across all farm categories, leasing farms displayed higher debt/asset ratios than farms engaging in a loan-purchase (fig. 11). A higher debt/asset ratio was a more consistent attribute of leasing farms than was a lower return on assets (fig. 12).

In the field-general crop category, the leasing of tractors represented the highest proportion of leasing expenditures (fig. 13). The average annual expenditure recorded for field crop farms (cotton) together with general crop farms (tobacco, sugar beets, etc.) was very high at nearly $12,000, compared with only around $4,000 for cash grain farms, the farm category recording the next highest average (fig. 14). The leasing of trucks was most prevalent for farms listed under the "other" category which includes vegetable, fruit and nut, other livestock, and greenhouse and nursery farms. Farm machinery other than tractors represented heavy proportions of leasing expenditures made by cash grain and dairy farms. In contrast with other farm categories, field and general crop farms spent a heavy proportion of their leasing expenditures on irrigation equipment. Sugar beet growers, especially in California, use extensive irrigation for a crop which requires large amounts of water.

CONCLUSIONS

The net present value examples (detailed in Appendix II) indicate that old and new tax laws render leasing less costly for low- and high-income farmers. The Tax Reform Act of 1986 significantly increases the cost advantage of the lease over a loan-purchase for high-income farmers due to its elimination of the investment tax credit previously available on a loan-purchase. These tax laws, however, decrease the lease's cost advantage for low-income farmers whose tax benefits received from the lessor decrease with the elimination of the investment tax credit.

Use of the present value method measures only the cost of a lease relative to a loan-purchase at one point in time. It does not, however, reveal whether the decision to lease better complies with the farmer's capital structure which includes debt leverage and equity position. The present value method also overlooks the effect of uncertain market variables such as changing interest rates and crop prices.

Present value examples can nevertheless indicate how tax laws target leasing incentives to particular groups of farmers. The cross-tabulation across farm size, region, and type showed lessee farmers to have significantly higher debt/asset ratios than farmers opting for loan financing. For the sake of their survival, many highly leveraged farmers are discouraged from incurring additional debt liabilities. If low incomes relate to high debt/asset ratios, the past tax laws targeted greater financial incentives to lease to financially stressed farmers. However, in the case of larger farms whose operations are heavily capitalized, high incomes coincide with high-debt levels. By increasing for high income farmers the cost advantage of leases relative to loan-purchases, the new tax laws provide them a stronger incentive to select a financial strategy better suited to their financial health.

Commercial banks and other creditors are very concerned that farms make capital budgeting decisions which best ensure their survival. Survival depends heavily on the outcomes of crop prices and input costs which affect net income. It also depends upon capital budgeting decisions made by a farmer deciding what farm resources to obtain and how to finance them. It would be useful to determine how financial strategies (such as leasing) and market conditions both in the farm input and output markets interact to affect the probability of survival. Variation in production expenditures and sources of income across size classes, regions, and types can significantly influence how financial strategies affect each farms' ability to remain in operation.

Figure 1- Proportions of leasing expenditures held by various sales classes, 1985

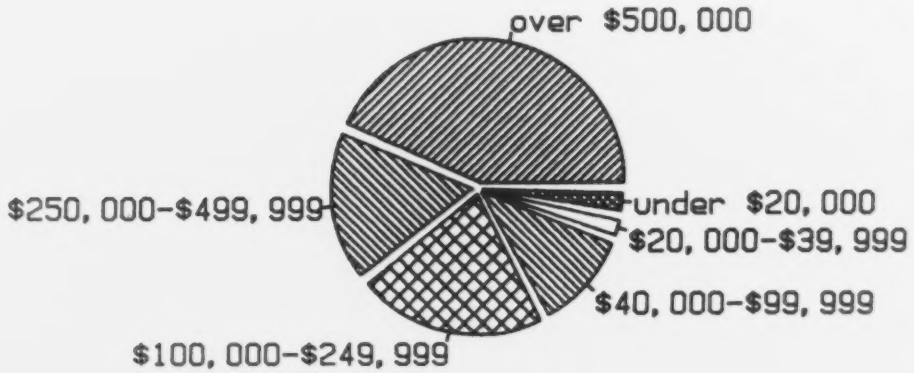
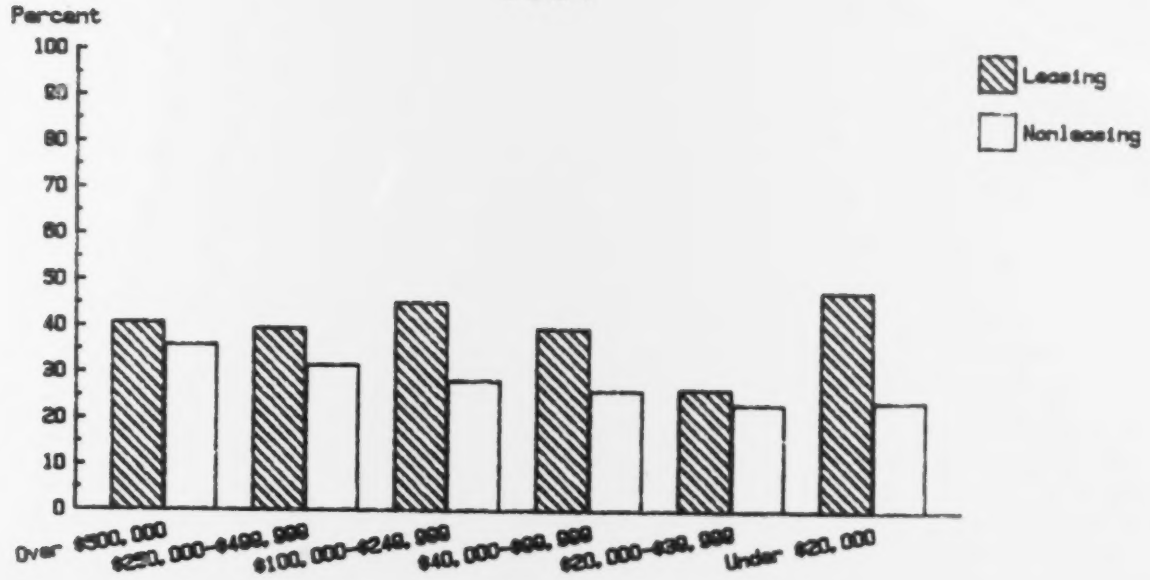


Figure 2- Debt/asset ratios of leasing and nonleasing farms by farm size class

1984



1985

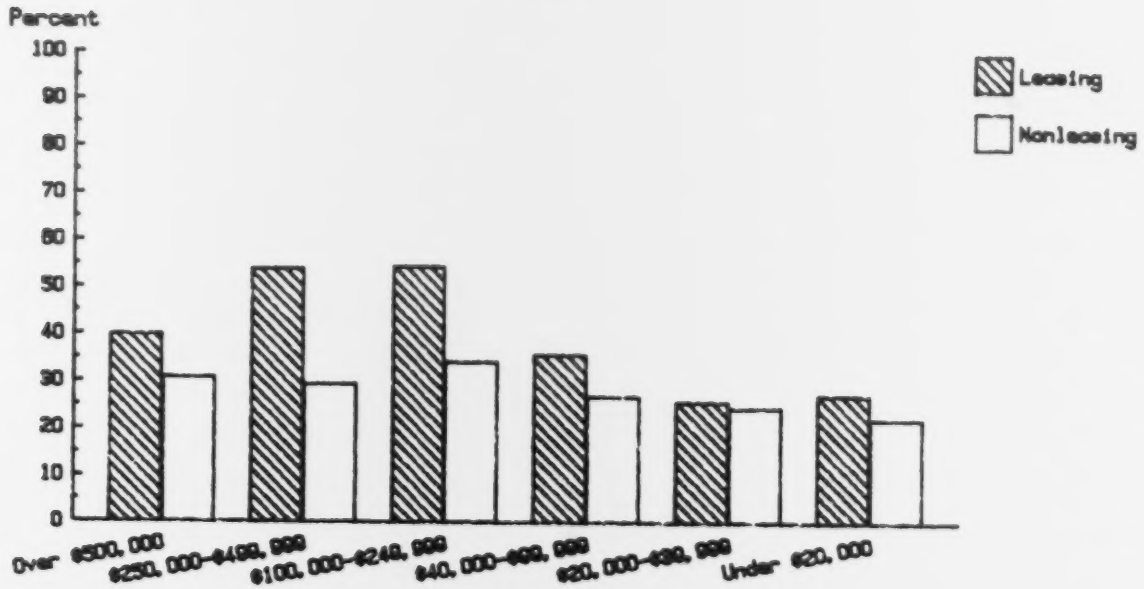
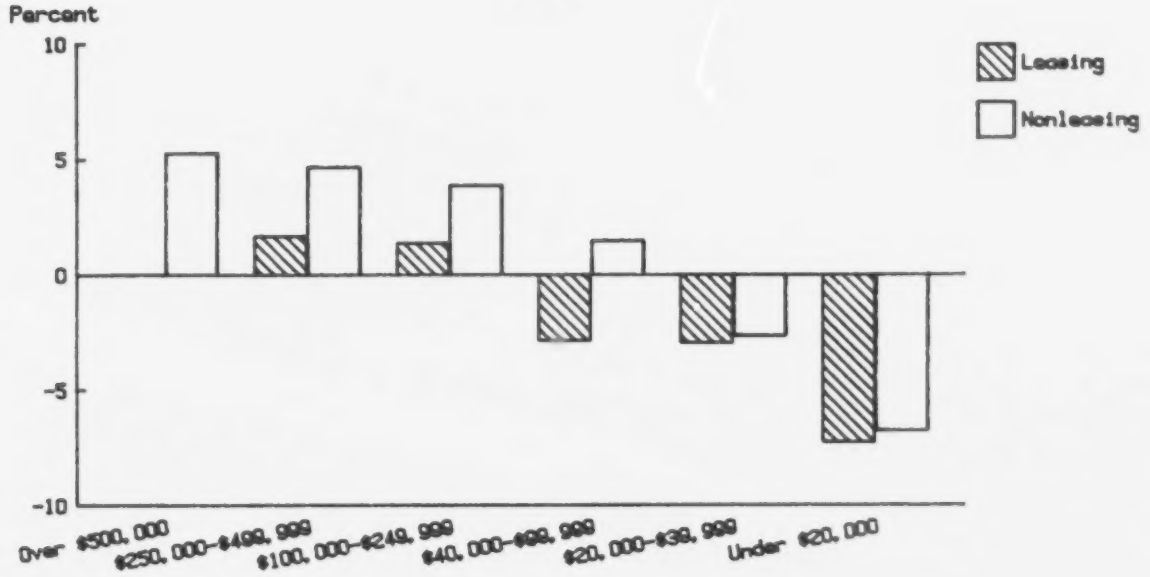


Figure 3- Return on assets of leasing and nonleasing farms by farm size class

1984



1985

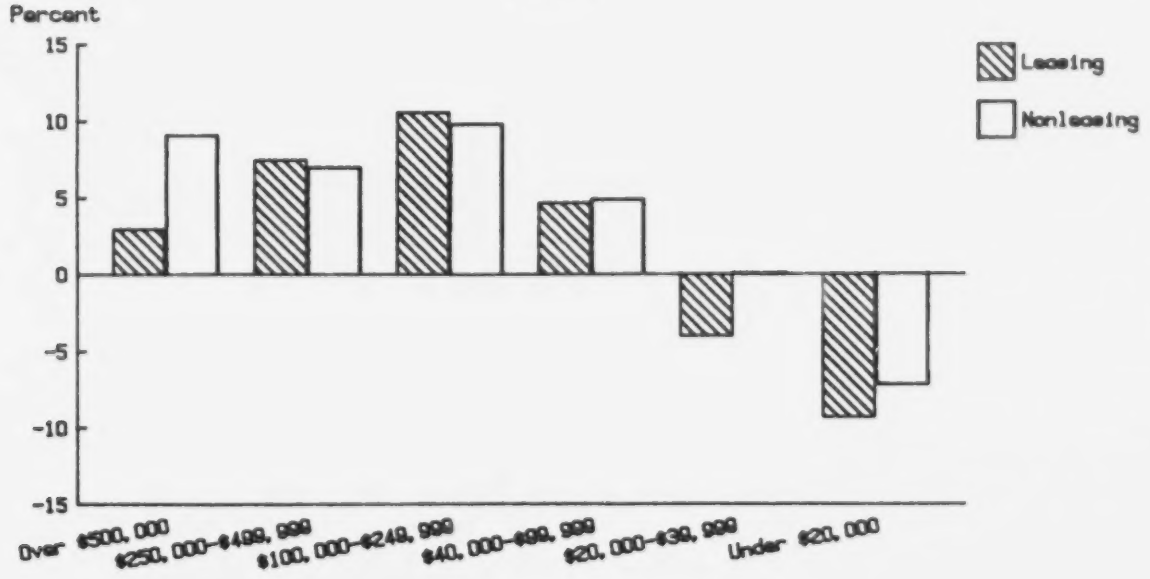


Figure 4- Average leasing expenditures by farm size, 1985

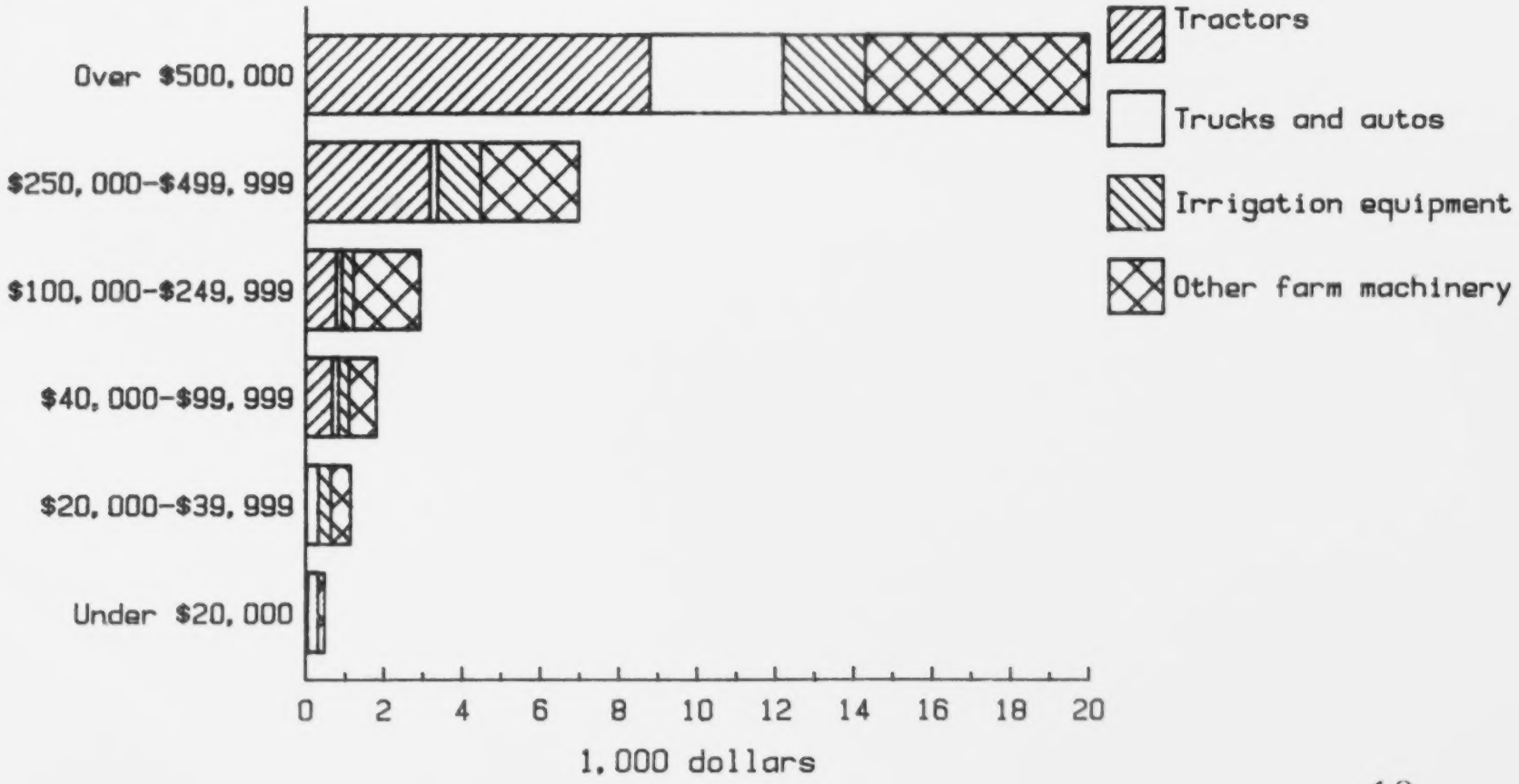


Figure 5- Proportions of leasing expenditures held by various regions, 1985

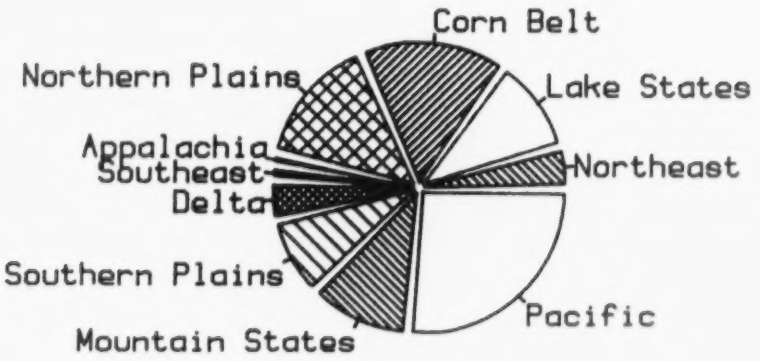
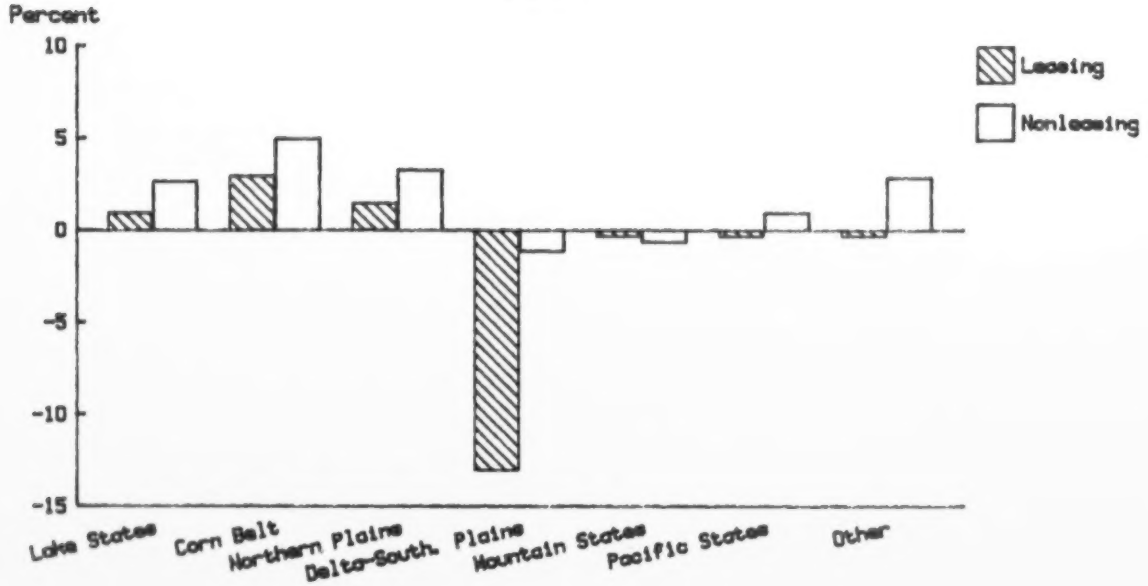


Figure 6- Return on assets of leasing and nonleasing farms by farm region

1984



1985

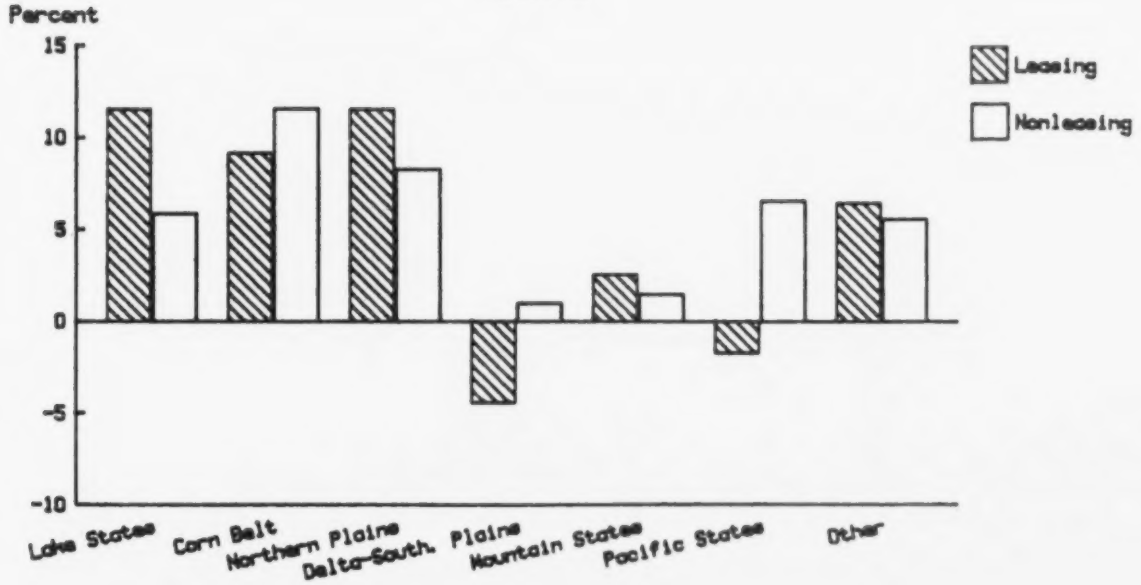
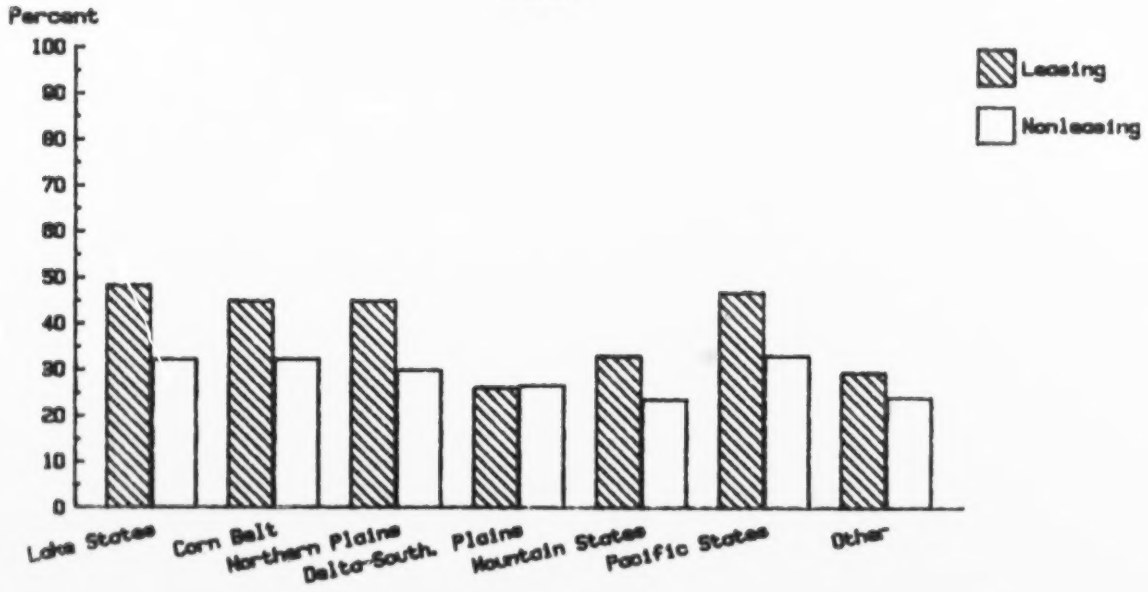


Figure 7- Debt/asset ratios of leasing and nonleasing farms by farm region
1984



1985

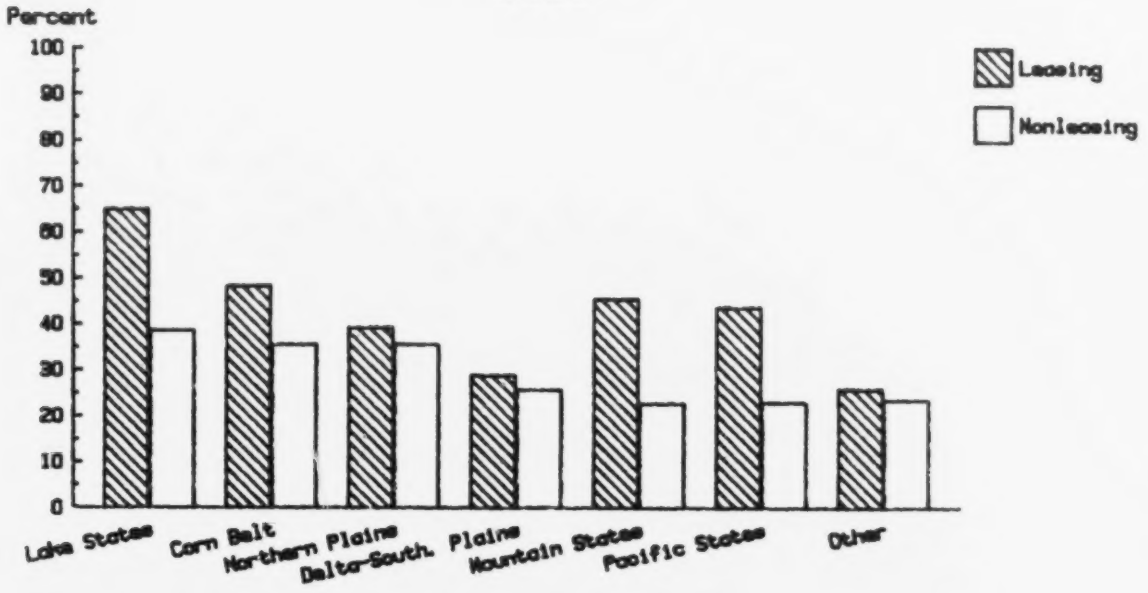


Figure 8- Annual leasing expenditures
by farm region, 1985

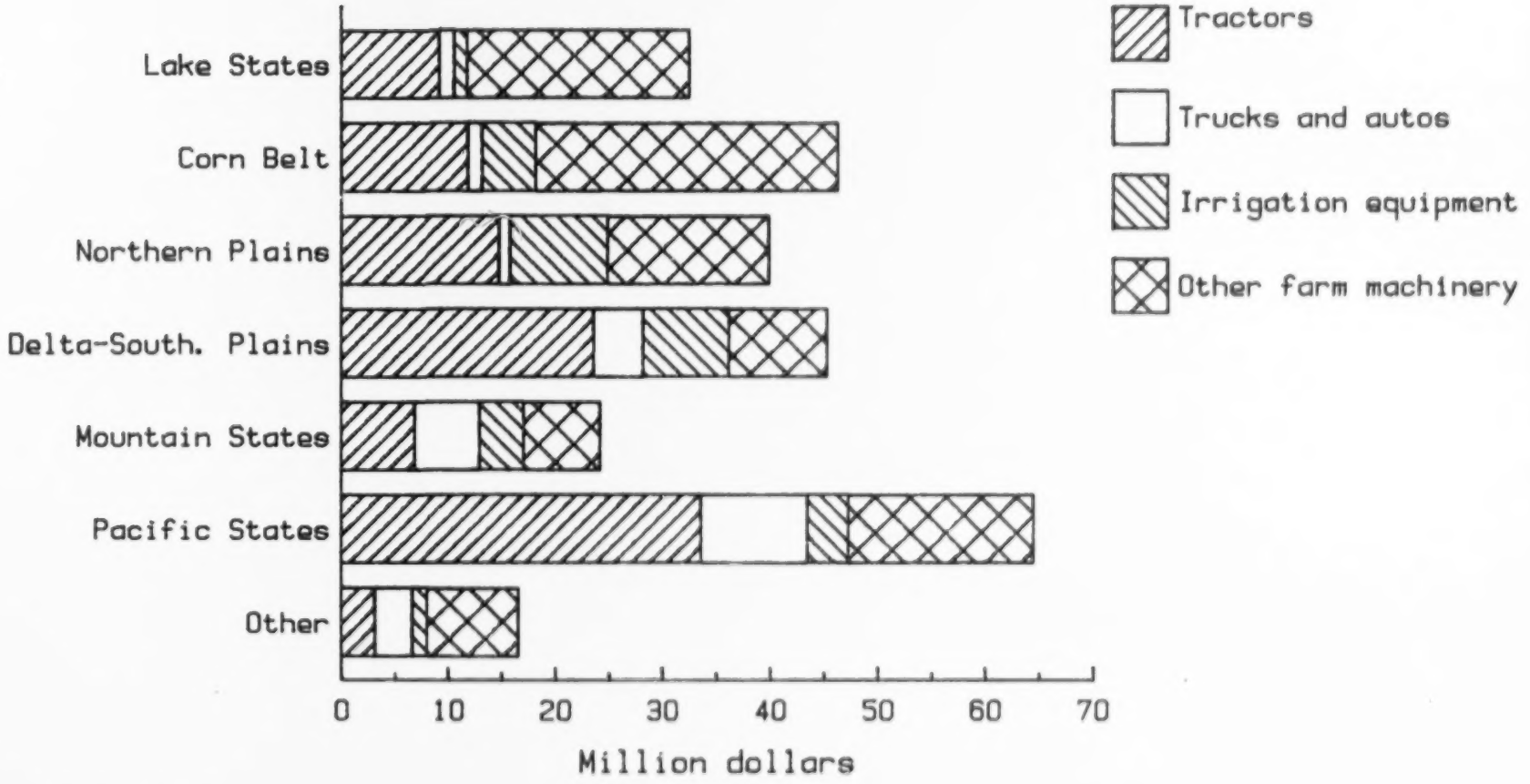


Figure 9- Average leasing expenditures
by farm region, 1985

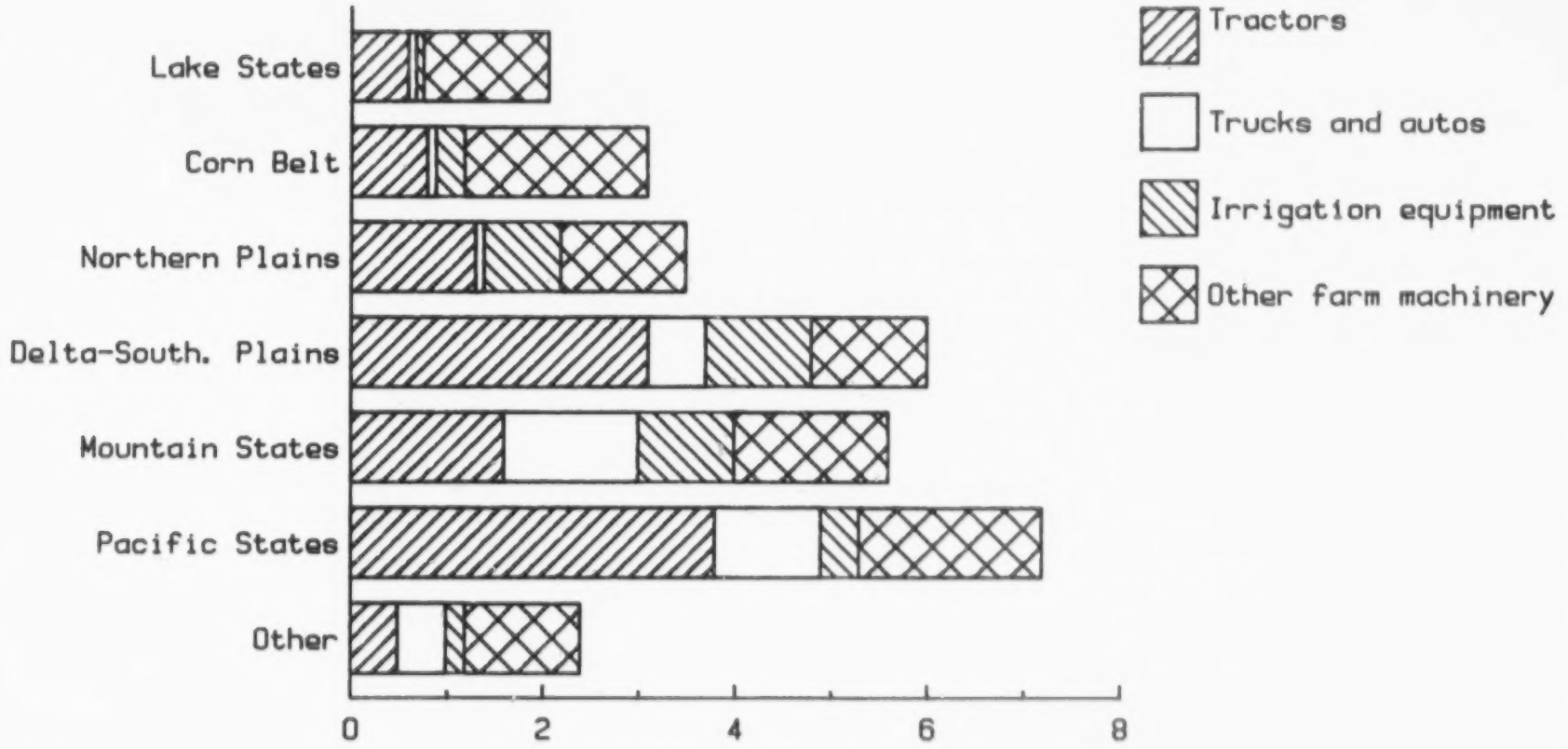


Figure 10- Proportions of leasing expenditures held by various farm types, 1985

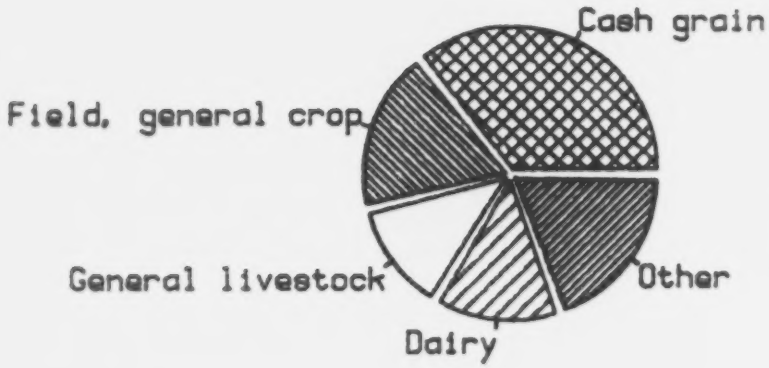
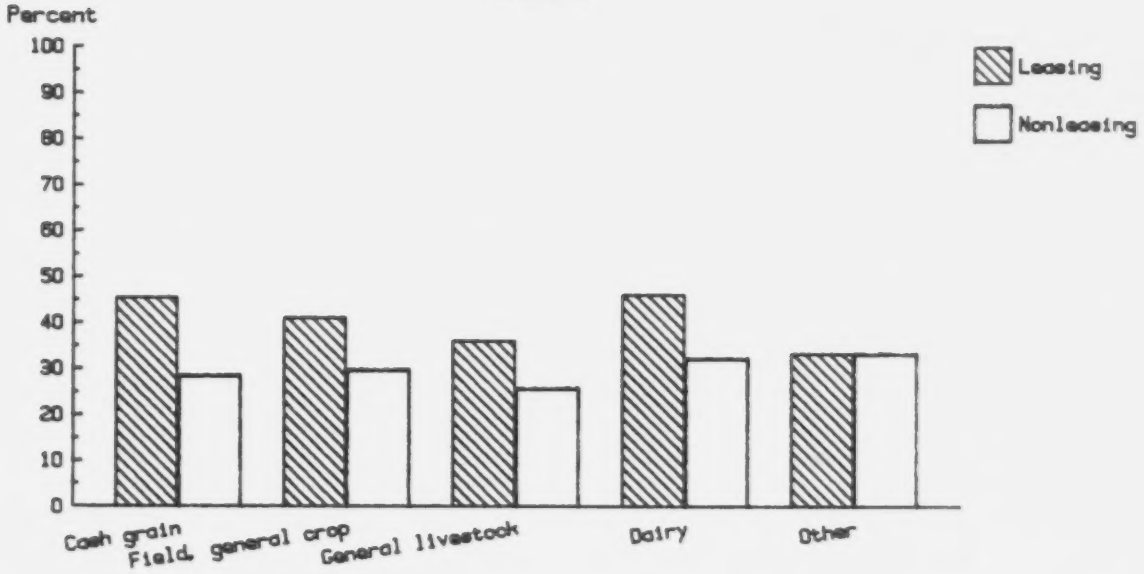


Figure 11- Debt/asset ratios of leasing and nonleasing farms by farm type

1984



1985

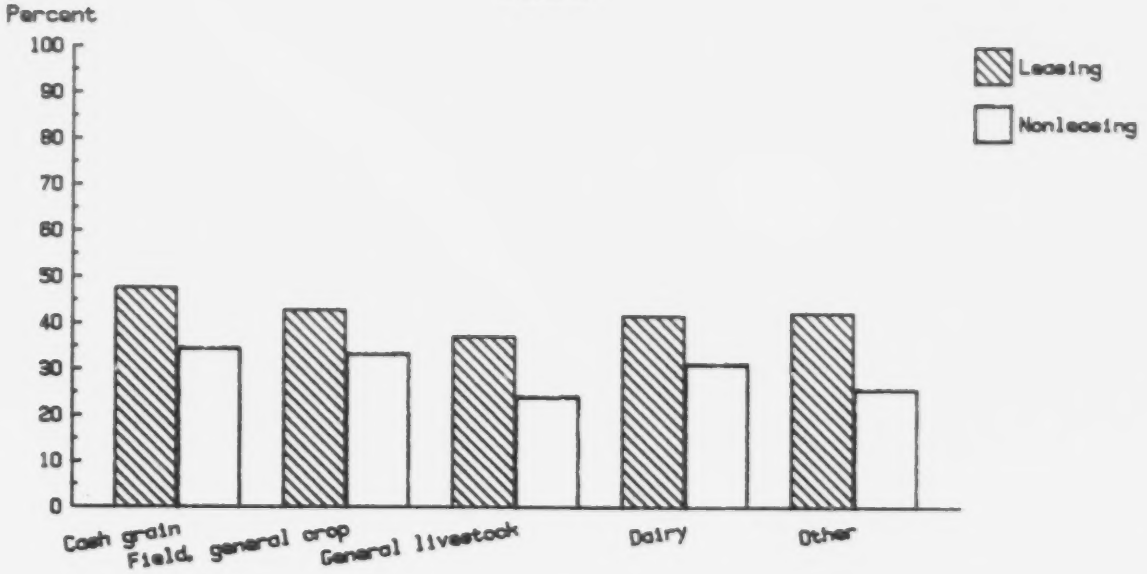


Figure 12- Return on assets of leasing and nonleasing farms by farm type

1984

1985

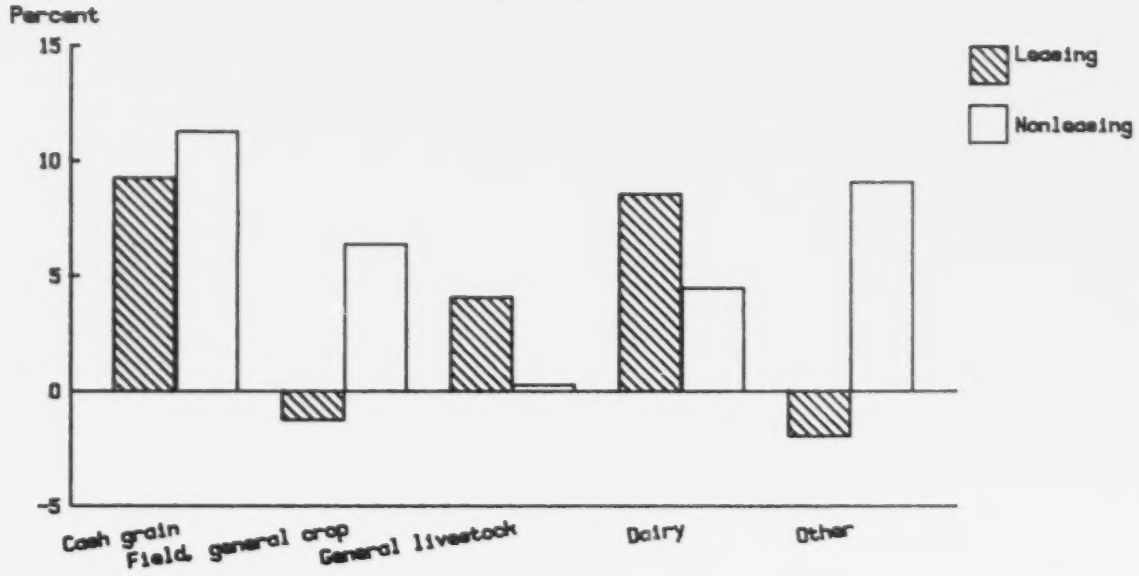


Figure 13- Annual leasing expenditures
by farm type, 1985

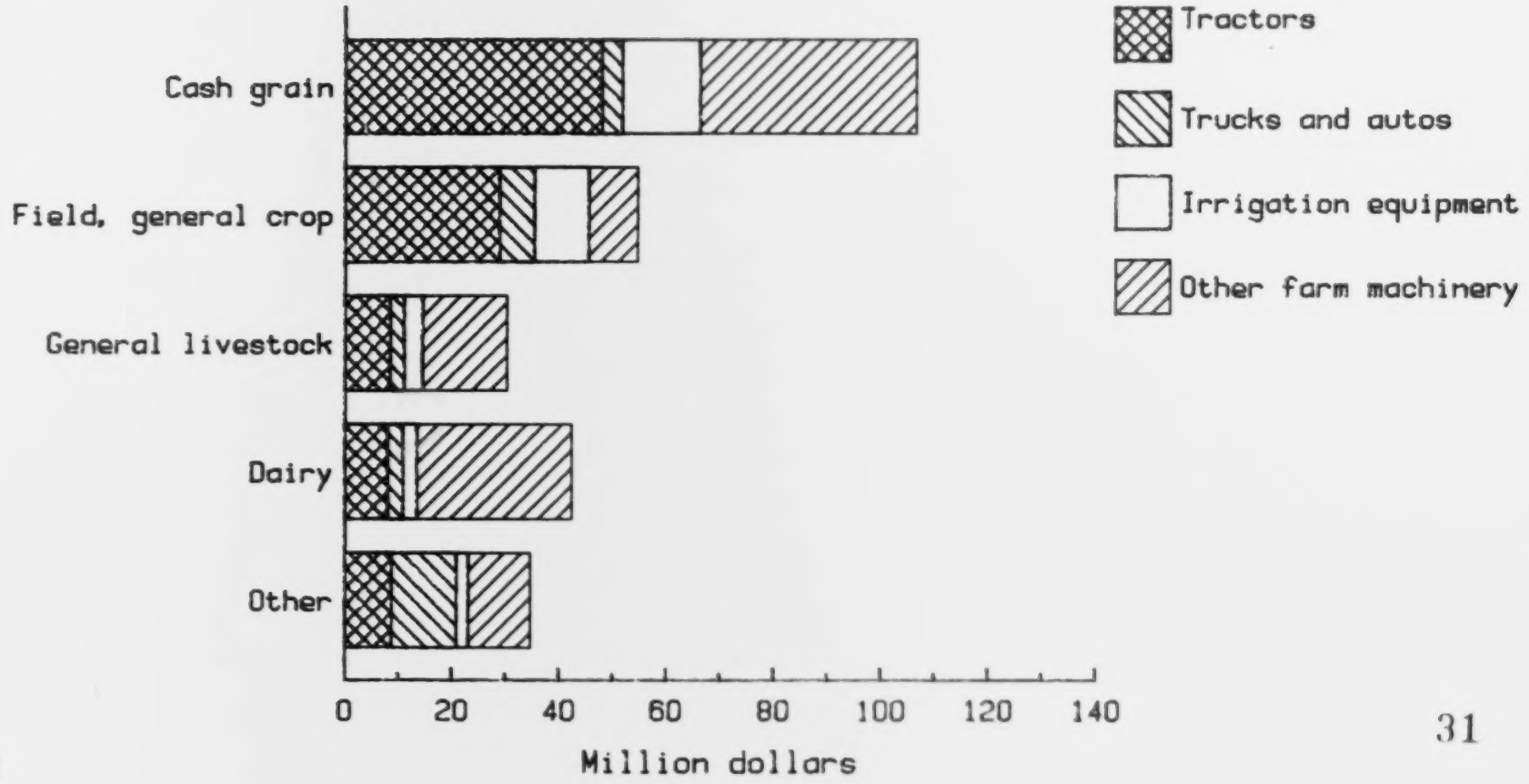
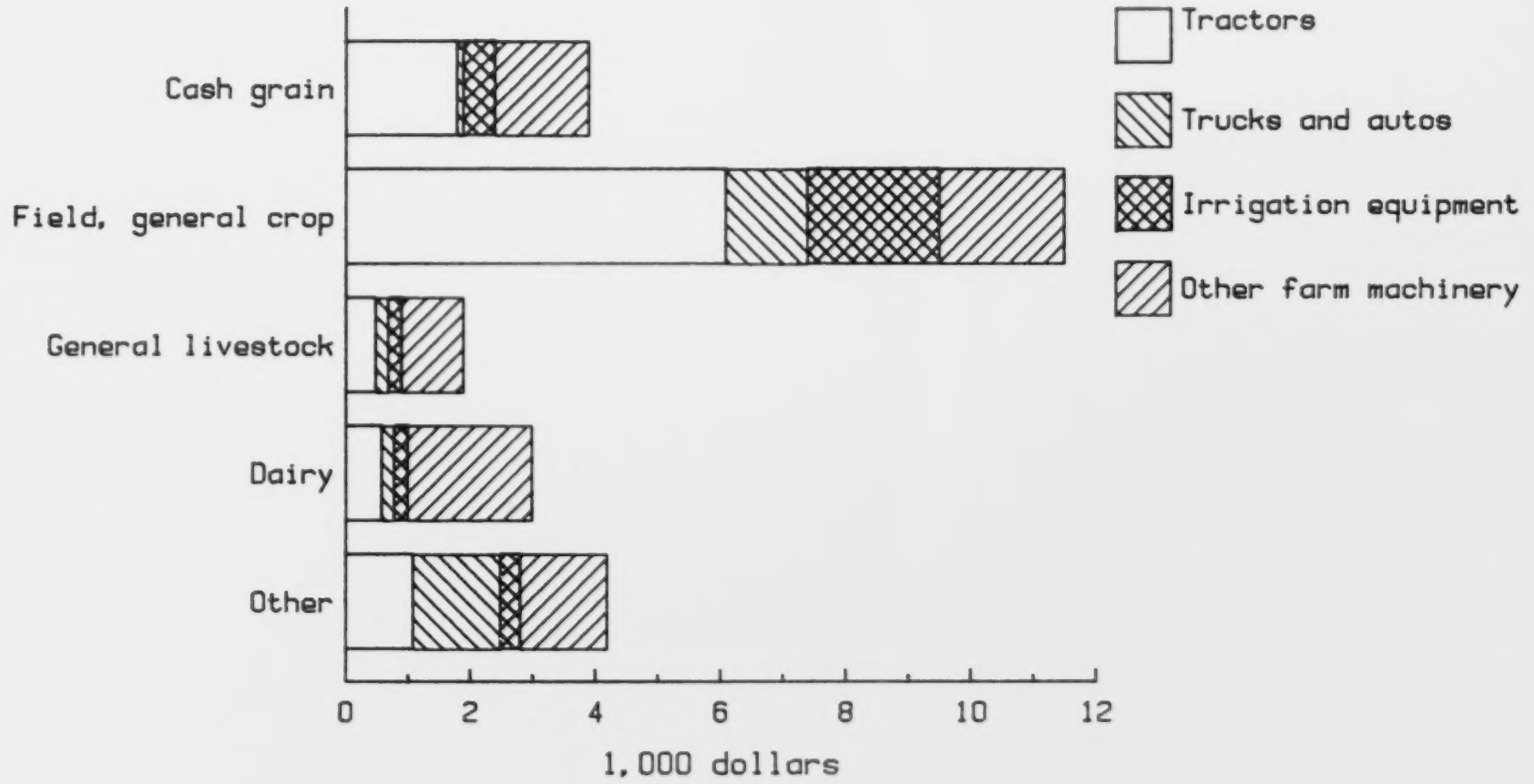


Figure 14- Average leasing expenditures by farm type, 1985



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APPENDIX I: EVOLUTION OF TAX LAWS PERTAINING TO LEASING

Because tax laws have been favorable to lessees, lawmakers have been careful to distinguish a true lease from a loan-purchase disguised as a lease. Under a loan-purchase, the farmer being financed assumes ownership of the equipment. Only an owner can reduce taxes through the depreciation deduction and the investment tax credit. Under a lease, both the lessor and the lessee can reduce taxes should they both have taxable incomes. To prevent both parties from using the lease solely to avoid taxes, past tax laws have required the lessor to bear the risks of ownership and be motivated by profit incentives apart from tax benefits. If the above transaction failed to meet these criteria, it received the same tax treatment as a loan-purchase where the lessee is considered the real owner of property.

Tax laws enacted in 1981 were not as concerned with the profit motive and liberalized the requirements previously imposed on lessors. When leases began to impose a drain on the U.S. Treasury, Congress in 1982 retightened these laws, but, nevertheless maintained relaxed standards for leases extended on agricultural property.

Guideline Leases

Before passage of the 1981 and 1982 tax laws, only guideline leases were allowed (3). Guideline rules defined leases as transactions where a lessor instead of a lessee actually owned the leased property (table 1). The guideline rules prevented a lessor from obligating a lessee to purchase the property at the end of the term. Thus, the lessor bore the risk of the property's decline in market value which equipment owners normally face. These rules also required the lessor to be at risk for 20 percent of the property's value and have a profit motive apart from tax deductions.

Economic Recovery Tax Act of 1981

The tax laws under the Economic Recovery Tax Act (ERTA) of 1981 were not as concerned with the distinction between "true leases" and leases which were loan-purchases in disguise. The new tax laws relaxed the standards which determine the ownership of leased property and allowed the lessor to pass the risks of ownership onto the lessee. Instead of 20 percent of the value of the leased property constituting the lessor's own funds, it required only 10 percent (7). ERTA also allowed a mandatory purchase contract at the beginning of the lease term. This contract completely transferred from the lessor to the lessee the risk in obsolescence of the leased property during the term.

ERTA decreased the required residual value of the equipment at the end of the term from 20 percent to 10 percent. This lower requirement allowed the leased property to be more fully amortized over the length of the lease term and to more closely resemble a loan-purchase. ERTA was also less concerned with the motivation of the lessor and the lessee. Contrary to the guideline rules, it completely eliminated the requirement that the lessor derive a minimum profit and cash flow from the transaction apart from tax benefits received.

By loosening the standards for determining ownership of leased property, ERTA allowed safe harbor leasing. This type of lease allowed the lessee to transfer the title of already-owned equipment to the lessor. Despite the nominal transfer of title strictly for tax purposes, the lessee retained the full use and control over the leased property. In return for forfeiture of

the 10-percent investment tax credit and the accelerated 5-year depreciation, the lessee received either a lump sum payment from the lessor or a guarantee of lower lease payments.

Tax Equity and Fiscal Responsibility Act of 1982

The Tax Equity and Fiscal Responsibility Act (TEFRA) of 1982 reincorporated many of the guideline provisions deleted by ERTA (7). Under TEFRA the tax laws again carefully defined true ownership of leased property. They reinstituted the requirement that the lessor's at-risk investment must be at least 20 percent of its purchase price and applied the same profit requirements upon the lessor as the guideline rules had done (app. table 1). The new tax laws did not go as far as guideline rules in preventing the use of lease payments to defray the purchase price of farm equipment. Unlike the guideline rules which prohibited a purchase option between lessor and lessee, TEFRA instituted finance leases which allow a purchase option equal to 10 percent of the leased property's original value. The purchase option enables the lessee to amortize the principal as on loan-purchase but imposes all the risk of decline in the equipment's value on the lessor. The farmer can exercise the purchase option if the property's market value exceeds its book value at the end of the lease term.

"Finance leases" of agricultural property with a value below $150,000 are subject to the above provisions. They are, however, exempt from many other requirements placed by TEFRA on other leases. Lessors on other lease transactions can carry only the unused depreciation or interest expenses forward to offset their income earned in future years, not back to income earned during prior years. The ability to carry back tax deductions is very important for lessors that are farm equipment manufacturers and dealers because they experienced profitability in past years and many now face operating losses.

The nonagricultural lease's tax deductions cannot reduce by more than 50 percent the lessor's annual tax liability. Furthermore, property attached to lease transactions can account for only 40 percent of the lessor's total property held during that year. If these requirements applied to agricultural leases, they would discourage lessors with a large percentage of revenue and earnings flowing from leasing activities.

Safe harbor rules allowed unprofitable companies to actually sell their tax benefits to profitable companies which could use them. As a result, many companies earning high profits paid no taxes at all. To eliminate this loophole, TEFRA abolished safe harbor leasing for all leased property other than agricultural equipment below $150,000 (3). The depressed farm economy induced Congress to retain the ability of lessors to transfer the value of tax benefits to farmers who would otherwise not be able to secure the use of farm equipment.

Although the Tax Reform Act of 1986 eliminated the investment tax credit and changed the depreciation schedule, it left intact the definition of leases under TEFRA. It, however, provided a transition period until December 31, 1987, for leased agricultural property valued below $150,000. During this period, lessors can continue to use the investment tax credit and follow the accelerated cost recovery schedule for depreciation. The transition period is more likely to have a greater impact on the willingness of lessors to supply lease financing than on farmers to demand it.

APPENDIX II: ILLUSTRATIONS

The following examples (app. tables 1-6) illustrate how the tax laws influence the costs of leasing relative to a comparative loan purchase as farm income levels and, consequently, tax brackets change. The comparison will be made under both the scenario of the past and recently passed tax laws. For the farmer with a low tax liability, there exists a tradeoff between the lease's pass-through of tax savings from the equipment owner and the accelerated depreciation and investment tax credit available to a farmer lessee on a loan-purchase. For the farmer with a high tax liability, the tradeoff occurs between the full deductibility of lease payments together with lessor's transfer of tax benefits and the farmer's access to the above tax deductions on a loan-purchase. The analysis will assume that at the end of the lease term, the farmer obtains title to the equipment by exercising the purchase option. This assumption facilitates a cost comparison between the lease and the loan which amortize the machinery's full initial value.

Assumptions

The examples compare the farmer's costs when acquiring the use of a $30,000 tractor through a finance lease and through a loan-purchase. Farmers who pay taxes as early as March 1 are not required to make quarterly tax payments on estimated income during the tax year. In order for the tractor's financing period to coincide with the farmer's annual tax payments, it is assumed that the farmer obtains use of the equipment on March 1 right before the planting season for most crops. Whether for a lease or a loan-purchase, it is assumed that under the accelerated cost recovery schedule (ACRS) of the past tax laws, the equipment owner will use accelerated depreciation. For tractors, this schedule allows 15 percent of the property's value to be depreciated during the first year, 22 percent during the second year, and 21 percent during each of the succeeding 3 years. The investment tax credit is a flat reduction of taxes and is, therefore, independent of the farmer's tax rate. For a farmer using the accelerated 5-year depreciation schedule, the 1982 tax laws reduced the investment tax credit from 10 percent to 8 percent of the equipment's original purchase value. For the recently passed tax laws, the examples will assume the elimination of the investment tax credit and the incorporation of double declining balance depreciation during the 7-year depreciation period. During the first year, the equipment owner can use only half the depreciation deduction.

The implicit rate of interest on both the lease and the loan will be 12 percent, the average rate charged by Production Credit Associations on intermediate-term loans in 1985. The following illustrations will use an after-tax interest rate to discount lease and loan installment payments. The before-tax discount rate will be 10 percent.

For both scenarios under the past and recently passed tax laws, the first lease-loan comparison (app. tables 1 and 3) assumes the farmer acquiring the use of the equipment to be in the highest tax bracket. The Tax Reform Act of 1986 reduced the top marginal tax rate on individual income from 50 percent to 28 percent. When an additional 20 percent is factored in for State income and FICA taxes, the marginal rates amount to 70 percent and 48 percent, respectively. Under the provisional tax laws, the top marginal tax rate is 38 percent. With the inclusion of State and FICA taxes, the total tax rate amounts to 58 percent. In the second comparison, the farmer is in the 0-percent tax bracket (app. tables 2 and 4).

For purposes of computing the value in tax benefit transfers from the lessor to the lessee farmer, the following illustrations assume the lessor to have the maximum tax liability. Because lessors are generally corporations, their top tax rates under the past and current tax laws are 46 percent and 34 percent, respectively. When an additional 7 percent is factored in for State corporate taxes, the rates become 53 and 41 percent.

The following illustrations will use an amortization period of 5 years. On a depreciable asset such as farm machinery, lenders and lessors often select a term not exceeding this length. In case of a default, they prefer the transaction's remaining balance to be less than the asset's resale value. This difference allows them to cover their at-large investment when selling recovered machinery. Because the depressed prices of used machinery have caused the market value of new equipment to depreciate more quickly after the fifth year, a relatively short lease period has been desired.

Lease Payments

The top portions of appendix tables 1-4 depict the schedule of payments on a lease transaction for a tractor while the bottom portions show payments amortizing a loan-purchase on the same tractor. The flow of gross lease payments in column 1 includes a purchase option payment paid in period 5. Because this residual value remains outstanding until the end of the lease term without its inclusion in the amortization schedule, a lessor would normally charge interest on it from period 1 through period 5. The analysis will assume a simple rate of interest charged on this residual value.

The lessee in the highest tax bracket can deduct the full lease payment which is shown in column 2 of appendix tables 1 and 3. The lessee also receives a transfer in tax benefits from the lessor in the form of a lower lease payment. As seen in appendix tables 2 and 4, the farmer with zero taxable income cannot take advantage of the lease payments' total tax deductibility. The farmer can, however, receive a transfer in tax benefits in the form of a lower lease payment. The value of tax benefits transferred to the farmer equals 76 percent of the investment tax credit and accelerated depreciation deductions taken by the lessor. LaDue estimated that equipment owners on average transfer this percentage to farmers (5). For illustrative purposes, appendix tables 2 and 4 will show the tax benefits received by the farmer with zero taxable income. In appendix tables 1 and 2, these tax benefits received by farmers in the highest tax bracket will already have been netted out of the lease payment.

In appendix tables 1 and 3, the tax deduction on lease payments are lagged 1 year behind lease payments. While tax deductions are received at the end of the year, lease payments are made at the beginning of the year. The same lag holds true for the transfer of tax benefits to farmers with no taxable income which occurs at the end of the year. The last two columns in each table represent the net cash outflow on a lease transaction and the present value of the cash outflow.

Loan Payments

Gross loan payments in the left column of appendix tables 1-4 include the repayment of principal and interest between period 1 and period 5 as well as the downpayment paid in advance during period 0. In appendix tables 1 and 3, the farmer in the highest tax bracket can use the depreciation deduction,

investment tax credit, and deduction on interest paid on the loan to reduce his tax liability. However, the farmer with no taxable income in appendix tables 2 and 4 cannot do so.

The farmer could use the investment tax credit in period 1 during the same period the first loan payment is made. Because loan payments are made at the end of the loan period, the farmer can also use depreciation deductions at the same time. Interest deductions are, however, lagged one period behind loan payments. While the depreciation is counted from the beginning of each loan period following the date of purchase, interest deductions are instead not counted until the end of the period when the interest is paid. The farmer cannot, therefore, deduct interest from taxes until the period following the loan payment.

Results

Appendix table 1 shows that, under the past tax laws, the farmer in the highest tax bracket could reduce financing costs by opting for the lease. The total deductibility of the lease payments and transfer of tax benefits from the lessor outweighed the investment tax credit, depreciation deductions, and interest deductions available on a loan-purchase. As a result, the lease incurred a much lower outflow of cash than the loan-purchase which had a large downpayment in period 0. The lease also had a lower present value cost. The present value on the total deductibility of lease payments and the transfer of lessor's tax benefits through a lower lease payment outweigh the present value of the above tax deductions available on a loan-purchase.

Appendix table 2 indicates that if the farmer is in the 0-percent tax bracket, leasing had a much lower net cash outflow and present value cost. While not benefitting from the investment tax credit and the depreciation deductions available on a loan purchase, this farmer could receive a transfer in tax benefits from the lessor in a lease transaction.

Under the recently passed tax laws, a double declining balance which allows a faster depreciation during the same 5-year lease term does not offset the elimination of the investment tax credit (app. table 3). As a result, the cash flow and present value cost advantage of the lease over the loan-purchase increases for high-income farmers. For farmers in the 0-percent tax bracket (app. table 4), the lease would continue to be less costly despite the lower value of benefits which the equipment owner can transfer to the lessee. By reducing the amount of tax benefits transferred from the lessor, the elimination of the investment tax credit and decrease in lessor's marginal tax bracket, nevertheless, significantly reduce the cost advantage of the lease.

During the transition period, the lease will continue to have a significant cost advantage for both low- and high-income farmers (app. tables 5 and 6). By keeping the investment tax credit and accelerated depreciation for lessors, the provisional laws encourage these lessors to continue charging lower lease payments.

Factors Affecting General Lease-Loan Comparison

Under the existing tax laws, leases relative to a loan-purchase should generally become more financially attractive to the farmer as the lessor's tax liability increases. Depreciation deductions increase with higher tax liability. The consequent greater value in tax benefits increases the leeway

the lessor has to lower the lease payment to the lessee and still earn a reasonable profit.

The higher a loan downpayment the greater the cash outflow of a loan relative to a lease. A high downpayment provides no interest deductions and thus raises the loan's after-tax cash outflow.

In cases where the loan has a large downpayment, a higher interest rate and consequent higher opportunity cost of capital raises the present value cost of loan-purchases relative to leases. With higher downpayments, a higher proportion of the loan payout occurs toward the beginning of the term than lease payments. A higher opportunity cost of capital or discount rate significantly decreases the present value of a lease payout made later in the term.

Lengthening terms beyond 5 years would increase both the cash outflow and present value cost of the lease relative to a loan-purchase. A longer period during which the lease's purchase option payment remains outstanding increases the amount of interest owed on it by the lessee.

Appendix table 1--Cash flow and present value costs of lease and loan-purchase for farmers in a 70-percent tax bracket, pre-1986 tax reform

Year	(1) Lease payment	(2) Tax savings on lease payment	(3) Net cash outflow	(4) Present value of cash outflow 1/
		Dollars		
Lease:				
0	6,688	0	6,688	6,688
1	2/ 3,411	4,682	(1,271)	(1,234)
2	4,390	2,388	2,002	1,887
3	4,510	3,073	1,437	1,315
4	4,510	3,157	1,353	1,202
5	3/ 822	3,157	(2,335)	(2,014)
6	0	252	(252)	(211)
Total	0	0	7,622	7,633

	(5) Loan payment	(6) Value of depreciation deduction	(7) Investment tax credit	(8) Value of interest deduction	(9) Net cash outflow	(10) Present value of net cash outflow
			Dollars			
Loan-purchase:						
0	4/ 7,500	0	0	0	7,500	7,500
1	6,241	3,150	2,400	0	691	671
2	6,241	4,620	0	1,890	(269)	(253)
3	6,241	4,410	0	1,592	239	219
4	6,241	4,410	0	1,260	571	507
5	6,241	4,410	0	886	945	815
6	0	0	0	469	(469)	(393)
Total	0	0	0	0	9,208	9,066

Note: Numbers in parentheses indicate negative numbers.
1/ After-tax discount rate = 3 percent.
2/ Payments in periods 1 through 5 include interest on purchase option payment.
3/ Payment in period 5 includes purchase option payment equal to 10 percent of tractor's initial value.
4/ 25-percent downpayment paid.

Appendix table 2--Cash flow and present value costs of lease and loan-purchase for farmers, 0-percent tax bracket, pre-1986 tax reform

Year	(1) Lease payment	(2) Transfer in tax benefits	(3) Net Cash outflow	(4) Present value of cash outflow 1/
		Dollars		
Lease:				
0	6,688	0	6,688	6,688
1	2/ 7,048	3/ 3,637	3,411	3,101
2	7,048	2,658	4,390	3,628
3	7,048	2,538	4,510	3,388
4	7,048	2,538	4,510	3,080
5	4/ 3,360	2,538	822	510
Total	0	0	24,331	20,395

	(5) Loan payment	(6) Value of depreciation deduction	(7) Investment tax credit	(8) Value of interest deduction	(9) Net cash outflow	(10) Present value of net cash outflow
			Dollars			
Loan-purchase:						
0	5/ 7,500	0	0	0	7,500	7,500
1	6,241	0	0	0	6,241	5,674
2	6,241	0	0	0	6,241	5,158
3	6,241	0	0	0	6,241	4,689
4	6,241	0	0	0	6,241	4,263
5	6,241	0	0	0	6,241	3,875
Total	0	0	0	0	38,705	31,159

1/ Pretax discount rate = 10 percent.
2/ Payments in periods 1 through 5 include interest owed on purchase option payment.
3/ Value of tax benefits transferred from the lessor to the farmer. Assumed that the lessor assessed maximum tax rate of 53 percent. Formula for deriving transfer in value tax benefits: [$30,000 (original asset value) x (0.15) (depreciation rate during first year) x (lessor's marginal tax rate) + 2,400 (investment tax credit in year)] x (0.76) (percent of lessor's tax benefits transferred to the farmer).
4/ Payment in period 5 includes purchase option payment.
5/ 25-percent downpayment paid.

Appendix table 3--Cash flow and present value costs of lease and loan-purchase for farmers in 48-percent tax bracket under Tax Reform Act of 1986

Year	(1) Lease payment	(2) Tax savings on lease payment	(3) Net cash outflow	(4) Present value of cash outflow 1/
		Dollars		
Lease:				
0	6,688	0	6,688	6,688
1	2/ 5,713	3,210	2,503	2,397
2	5,140	2,742	2,398	2,167
3	5,685	2,467	3,218	2,764
4	6,075	2,729	3,346	2,732
5	3/ 2,665	2,916	(251)	(195)
6	0	173	(173)	(128)
Total	0	0	17,729	16,425

	(5) Loan payment	(6) Value of depreciation deduction 4/	(7) Value of interest deduction	(8) Net cash outflow	(9) Present value of net cash outflow
			Dollars		
Loan-purchase:					
0	5/ 7,500	0	0	7,500	7,500
1	6,241	2,057	0	4,184	3,977
2	6,241	2,939	1,296	2,006	1,813
3	6,241	2,099	1,092	3,050	2,620
4	6,241	1,499	1,864	3,878	3,166
5	6,241	1,071	1,607	4,563	3,541
6	0	0	322	(322)	(238)
Total	0	0	0	24,859	22,379

Note: Numbers in parentheses indicate negative numbers.

1/ After tax discount rate = 5.2 percent.

2/ Payments in periods 1 through 5 include interest on purchase option payment.

3/ Payment in period 5 includes purchase option equal to 10 percent of tractor's initial value.

4/ For both the farmer electing to exercise the purchase option and the farmer engaging in a loan-purchase, the residual value of the leased property includes the remaining 2 years of depreciation.

5/ 25-percent downpayment paid.

Appendix table 4--Cash flow and present value costs of lease and loan-purchase for farmers in 0-percent tax bracket under Tax Reform Act of 1986

Year	(1) Lease payment	(2) Transfer in tax benefits	(3) Net cash outflow	(4) Present value of cash outflow 1/
		Dollars		
Lease:				
0	6,688	0	6,688	6,688
1	2/ 7,048	3/ 1,335	5,713	5,194
2	7,048	1,908	5,140	4,248
3	7,048	1,363	5,685	4,271
4	7,048	973	6,075	4,149
5	4/ 3,360	695	2,665	1,655
Total	0	0	31,966	26,205

	(5) Loan payment	(6) Value of depreciation deduction	(7) Value of interest deduction	(8) Net cash outflow	(9) Present value of net cash outflow
			Dollars		
Loan-purchase:					
0	5/ 7,500	0	0	7,500	7,500
1	6,241	0	0	6,241	5,674
2	6,241	0	0	6,241	5,158
3	6,241	0	0	6,241	4,689
4	6,241	0	0	6,241	4,263
5	6,241	0	0	6,241	3,875
Total	0	0	0	38,705	31,159

1/ Pretax discount rate = 10 percent.
2/ Payments in periods 1 through 5 include interest owed on purchase option payment.
3/ Value of tax benefits transferred from the lessor to the farmer. Assumed that lessor assessed maximum tax rate of 41 percent.
4/ Payment in period 5 includes purchase option payment.
5/ 25-percent downpayment paid.

Appendix table 5--Cash flow and present value costs of lease and loan-purchase for farmers in 58-percent tax bracket (transition period)

Year	(1) Lease payment	(2) Tax savings on lease payment	(3) Net cash outflow	(4) Present value of cash outflow 1/
		Dollars		
Lease:				
0	6,688	0	6,688	6,688
1	2/ 3,822	3,879	(57)	(55)
2	4,992	2,217	2,775	2,556
3	5,085	2,895	2,190	1,936
4	5,085	2,949	2,136	1,812
5	3/ 1,397	2,949	(1,552)	(1,263)
6	0	209	(209)	(163)
Total			11,971	11,511

	(5) Loan payment	(6) Value of depreciation deduction 4/	(7) Value of interest deduction	(8) Net cash outflow	(9) Present value of net cash outflow
			Dollars		
Loan-purchase:					
0	5/ 7,500	0	0	7,500	7,500
1	6,241	2,485	0	3,756	3,605
2	6,241	3,551	1,296	1,394	1,284
3	6,241	2,536	1,092	2,613	2,310
4	6,241	1,811	864	3,566	3,025
5	6,241	1,294	607	4,340	3,533
6	0	0	332	(332)	(259)
Total	0	0	0	22,837	20,998

Note: Numbers in parentheses indicate negative numbers.

1/ After tax discount rate = 4.2 percent.

2/ Payments in periods 1 through 5 include interest on purchase option payment.

3/ Payment in period 5 includes purchase option payment equal to 10 percent of tractor's initial value.

4/ Under the Tax Reform Act of 1986, the farmer can no longer use the investment tax credit and the 5-year accelerated cost recovery schedule.

5/ 25-percent downpayment paid.

Appendix table 6--Cash flow and present value costs of lease and loan-purchase for farmers in 0-percent tax bracket (transition period)

Year	(1) Lease payment	(2) Net cash outflow	(3) Present value of cash outflow 1/
		Dollars	
Lease:			
0	6,688	2/ 6,688	6,688
1	3/ 3,822	3,822	3,475
2	4,992	4,992	4,126
3	5,085	5,085	3,820
4	5,085	5,085	3,473
5	4/ 1,397	1,397	867
Total	0	27,069	22,449

	(4) Loan payment	(5) Value of depreciation deduction	(6) Investment tax credit	(7) Value of interest deduction	(8) Net cash outflow	(9) Present value of net cash outflow
			Dollars			
Loan-purchase:						
0	5/ 7,500	0	0	0	7,500	7,500
1	6,241	0	0	0	6,241	5,674
2	6,241	0	0	0	6,241	5,158
3	6,241	0	0	0	6,241	4,689
4	6,241	0	0	0	6,241	4,263
5	6,241	0	0	0	6,241	3,875
Total	0	0	0	0	38,705	31,159

1/ Pretax discount rate = 10 percent.

2/ Value of tax benefits transferred from the lessor to the farmer. Assumed that the lessor assessed maximum tax rate of 53 percent. Formula for deriving transfer in value of tax benefits: [$30,000 (original asset value) x (0.15) (depreciation rate during first year) x (lessor's marginal tax rate) + 2,400 (investment tax credit in year)] x (0.76) (percent of lessor's tax benefits transferred to the farmer).

3/ Payments in periods 1 through 5 include interest owed on purchase option payment.

4/ Payment in period 5 includes purchase option payment.

5/ 25-percent downpayment paid.

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